ABSTRACT

A signal processing utility is disclosed involving time-to-frequency domain transforms for applications including medical diagnostic signal processing. Such transforms can be used to define a continuous spectral density function or other spectral density function including non-zero values at irregularly spaced frequency intervals. The invention thereby enables more accurate representation of certain real spectra and reduced spectral broadening. The utility also accounts for digitization errors associated with analog-to-digital conversion. The invention has particular advantages with respect to medical contexts where the received signal has a changing spectral content as a result of interaction of an interrogating signal with moving physiological material such as blood flowing through an artery.